REMARKS

Claims 1-3 were rejected as anticipated by Beneking. Claims 4-17 were rejected as unpatentable over Beneking. Applicant requests reconsideration. Independent claims 1, 6, and 18 include the limitation that the drains are coextensive in length. New claims 18 and 19 were added to include limitations of improved packing of multiple MOSFETS. The previously presented independent claims were previously amended to recite that the MOSFET is a triode MOSFET. Previously presented claims 15, 16, and 17 were previously amended to recite that the gate curvature is less than or equal to a quartercircle.

Beneking discloses a tetrode MISFET, not a MOSFET, having five electrodes, consisting of a source S, two drains D1 and D2, and discloses two control gates G1 and G3, and an interconnecting control gate G2. All of the present claims are directed to triode MOSFETs consisting of a single source, a single drain, and a single gate, where the drain and gate are coextensive in length, the gate curvature is defined by a radius from the source, and, the gate is less than 180 degrees. As is apparent from Beneking, the tetrode MIS-FETs are basically circular in configuration with opposing drains between which are disposed respective gate electrodes G1 and G3, an interconnecting gate G2. With all due respect, Beneking does not disclose a triode MOSFET.

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The background of the present specification recites the prior art circular designs of the triode configurations that lack an ability to pack the MOSFETs in silicon for high density integration, while also disclosing the prior art semicircular serpentine configurations. The present invention enables high-density integration of MOSFETs, similar to a stack of shallow bowls, and hence, the particular 1/4 and 1/8 circular designs of the preferred embodiments.

Beneking teaches prior art circular type design that does not address the poor packing density problem. While Beneking does show gates that are curved, one gate is slightly less than a semicircle, that difference was slight to accommodate two separate gates with opposing respective drains, but in total is still substantially a circular design, and that difference is not directed to a triode MOSFET as claimed. The claims 16 and 17 recite a limitation of a quartercircle or less curvature that allows for efficient packing integration of large numbers of MOSFETs while retraining the curved gate structure, not taught by Beneking. The circular design of Beneking teaches away from high-density packing. All of the claims have now been limited to only triode MOSFETS, and hence, are not anticipated by the tetrode MIS-FET device of Beneking. Beneking does not address the problem of poor packing density of integrated triode MOSFETS, which problem is solved by the present invention, having curved gates in a triode MOSFET configuration.

The present invention in characterized as triode MOSFETs, each of which having a gate with a defined radius and a defined arc-

length. This combination of features allows for improved reliability with improved packing density. Beneking teaches away from a curved signal triode MOSFET transistor and away from improved packing density wherein transistors can be packed similar to stacked bowls using gate curvatures.

The examination states that Beneking discloses "a gate terminal (G1, G3)". How can G1 and G3 be equated to a singular gate in a triode MOSFET without a suggestion to do so and in the presence of clear teachings not to interconnect Beneking terminals to form a single triode MOSFET?

The examination states that Beneking discloses "a second terminal (2,3)". How can terminals 1 and 3 be equated to a singular drain without a suggestion to do so and in the presence of clear teachings not to interconnect drains to form a singular drain to form a single triode MOSFET?

In Beneking there are three gate electrodes and two drain (second) terminals, yet the examination simply equates them as one, without any suggestion whatsoever do to so, the hallmark of forbidden hindsight reconstruction, especially in the presence of contrary teaching not to form a single transistor.

The difference between Beneking's tetrode MIS-FET and the claimed triode is clear. The tetrode MIS-FET uses the control gate G3 to directly or indirectly control the second gate G2, that in turn controls the first gate G1. The claimed triode MOSFET has no

such direct or indirect control or interconnection. The examination should recognize the difference between the tetrode MIS-FET and the claimed triode MOSFET. In the triode MOSFET, there is a gate G controlling current between a source S and a drain D. In the tetrode MIS-FET, the gate (G3) is connected directly or indirectly through the drain D2, to a control gate G2, that in turns controls in part current flowing from that same source to another drain D1. The use of the gate G3 to control current flow from the same source S to another drain D1 is not the operation of a triode MOSFET. Beneking device is not triode MOSFET. Beneking teaches the use of the tetrode MIS-FET with an individual transistor. "In the arrangement illustrated in Fig. 1, the electrodes D1, G2, G1, S are electrodes of the TETRODE while the electrodes S, G3, D2 are associated with the individual transistor". Clearly, in Figures 7, 8, and 9, Beneking shows how the tetrode device is interconnected in application as three functioning MOSFETS, and not just one MOSFET. As shown, the two control gates G1 and G3 are not connected to each other, and hence, are controlling separate drains though using a single source terminal disposed on a silicon chip. The examination should acknowledge that Beneking teaches, in Figure 1, an interconnected tetrode MIS-FET device interconnected to effectively form three interconnected transistors, only one of which is described as an individual transistor S, G3, and D2 having a curved gate that is curved greater than 180 degrees. In all exemplar forms in Beneking, the G1, S, D1 transistor in Figures 1, 2, 5 and 6 has a second control gate G2, and hence, is not a triode MOSFET. Only the gate G3 is a gate that is disposed between a drain

D2 and the source S. The G1 and G2 gates, the drain D1 and source do not form a triode MOSFET.

Figures 1 and 2 of Beneking do not show a gate (G3) that has an arc-length less than 180 degrees. In Figures 5 and 6, the drain D2 is not coextensive in length to the gate curvature of the gate G3. The tetrode MIS-FET of Figures 1, 2, 5 and 6 do not enable high packing densities of multiple like triode MOSFETS. Beneking does not anticipate the present invention. Beneking teaches a device having multiple drains, and multiple gates, and a source. Without regard to the interconnection application teaching, the examination equates all of these parts as a triode MOSFET, without a suggestion to do so and explicitly contrary to the teachings of Beneking.

Beneking does teach a single transistor, S, G3 and D1, within the tetrode device of Figure 1. However, in Figure 1, the G3 gate has approximately 300-degree arc length that does not anticipate the present invention. Beneking is directed to the use of MIS-FET tetrodes for by two curved control electrodes for VHF and UHF circuit applications, whereas the present invention is directed to a triode MOSFET having a single reduced arc-length gate for improved reliability and packing density.

Beneking dual control solution for UHF and VHF applications is not related to the solution of high reliability and high packing densities. The choice of 1/8 or 1/4 circle arc lengths as solutions to poor reliability and low packing densities is not just a matter of simple design choice, but is the solving of an unrelated

problem. The prior art choices were circles and semicircles that do not provide for the improved reliability and improved packing densities, and hence, the claimed invention is not just a matter a design choice, but solves a problem heretofore unsolved.

Beneking does not teach a triode MOSFET having a curved gate of defined curvature and arc length coextensive with a drain. Beneking does not suggest a triode MOSFET of such limitations for improved reliability and packing densities. Allowance of the claims is kindly requested.

Respectfully Submitted

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